# Constitutive Expression of Ia Molecules by Murine Epithelial Cells: A Comparison Between Keratinocytes and Enterocytes

To the Editor:

Dr. Byoung-Deuk Jun and coworkers [1] have addressed the interesting issue of differential inductibility of Ia antigens on epithelial cells with respect to their tissue origin. They reported that murine keratinocytes which do not express class II molecules are induced to do so only after in vivo treatment with high doses of gamma interferon (IFN) in vivo, while murine small intestinal epithelial cells (EC) can be induced for Ia expression even by low doses of gamma IFN. We agree with the authors concerning lack of Ia expression by keratinocytes in situ; however, we would like herein to emphasize that their statement concerning the absence of constitutive Ia expression by murine gut EC on the basis of the absence of reactivity with some MoAbs must be examined with caution.

Expression of Ia molecules by the intestinal epithelium has been described in several species, including guinea pig, mouse, rat, and human (reviewed in [2]). In order to examine constitutive Ia expression by murine small intestinal EC, we have performed a series of experiments using a monomorphic anti-Ia monoclonal antibody (MoAb) CD311 (A. Glasebrook, Lilly Research Laboratories, La Jolla, CA, USA), which recognizes a determinant present on the alpha and the beta chains of both I-A and I-E regions encoded molecules, in a large number of H-2 haplotypes including d,k,b [4]. This antibody strongly stains Langerhans cells on mouse epidermal sheets, while keratinocytes are CD311 negative (Fig 1). In contrast, immunohistochemical staining of mouse gut EC both in situ on duodeno-jejunum cryostat sections and as pure single-cell suspensions using CD311 MoAb, and analysis by both light microscopy and electron microscopy, clearly and reproducibly shows the presence of Ia molecules in the apical cytoplasm and at the baso-lateral membranes of gut EC covering the upper two-thirds of the villi (Fig 2) ([2] and K. Vidal, [3]). Furthermore these $Ia^+T200^-$ enterocytes are capable of presenting a soluble antigen to class II-restricted CD4+ T cells in vitro [5], a finding strongly supporting the theory that they express functional Ia molecules.

Therefore we think that the apparent lack of Ia on gut EC reported by the authors most likely reflects low quantitative expression or poor accessibility of a specific determinant recognized by the MoAb they have used rather than the lack of Ia molcule per se. This might also explain why low doses of gamma IFN are sufficient to induce Ia on gut epithelium, whereas Ia induction on keratinocytes is only modest even after treatment of mice with high doses of gamma IFN.

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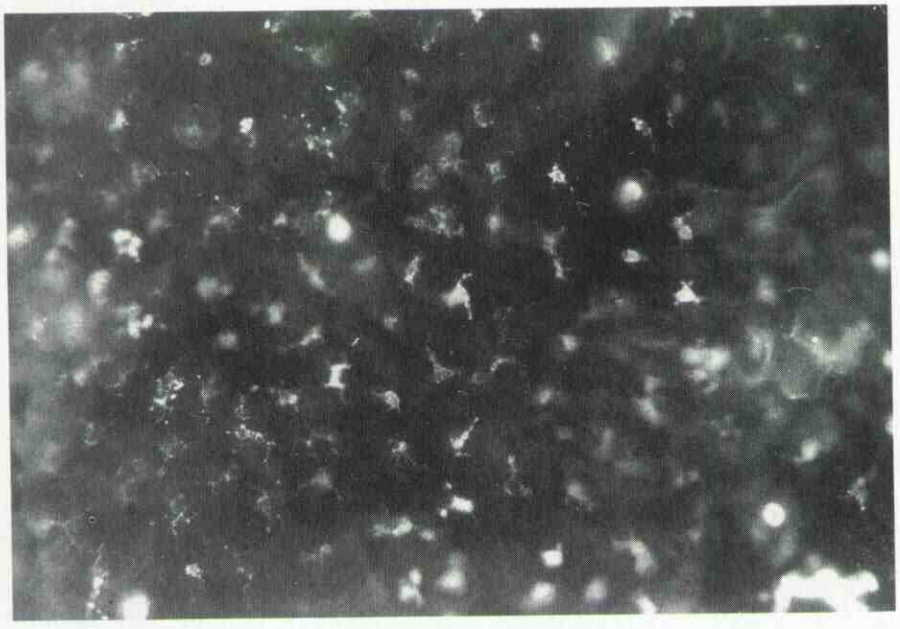

**Figure 1.** Indirect immunofluorescence analysis of $Ia^+$ Langerhans cells on normal mouse epidermal sheet. (Magnification ×16.)